Ramionics: Formulating and calculating all physics concepts and constants including Fine Structure Constant α, ħ, c, K Coulomb, e, K Boltzmann, Range of dark gravity and Dark Energy, Energy density of space and (mass, charge and structure) of (matter particles and energy particles)
by Ramin Khosravi, 1st July 2025 Last version: http://Ramionics.com

1.Epigraphs: The Mystery of 137

Richard Feynman: "You might say the hand of God wrote that number and we don't know how He pushed His pencil."

Wolfgang Pauli: "When I die, my first question to the Devil will be: What is the meaning of the fine-structure constant?"

Max Born: "No theory of the universe should be regarded as complete if it cannot explain the number 1/137."

Paul Dirac: "If numbers such as 137 turn out to be pure geometry, physics will finally have reached its foundation."

Albert Einstein :"The constant α has the value of about 1/137. Nobody knows why. It seems to be one of the greatest unsolved problems in physics."

Enrico Fermi :"No one knows what determines the value of α, and until we do, physics will not be complete."

Niels Bohr :"In the fine-structure constant we meet a number that appears to set the scale of all electromagnetic phenomena."

Hendrik Lorentz :"The fine-structure constant connects the worlds of mechanics, electromagnetism, and quantum theory in a single dimensionless number."

Max Planck :"Every dimensionless constant of nature hides a mystery; α is the deepest of them all."

Ramin: "give me only your desired scaling for space, time and energy units. I calculate all constants in the universe and physics (including fine structure constant) using universe geometry."

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2.Introduction

Ramionics as a new physics defines the **universe** as an FCC lattice (Face-Centered Cubic) of 3 dimensional simple spherical **energy quanta** called **Ramions** (**Rotational Anti Matter and Matter ION**) Any ramion is a packet of pure energy that consists **equal linear/rotational energy** parts (E_{Lr}, E_{Rr}) generating **pressure/torque** (P, T) then **relativity/electricity** then **gravity/electromagnetics** then **strong/weak** nuclear forces.

(1) $E_r = \left\{(E_{Lr} + E_{Rr}) = 2(E_{Lr} = E_{Rr}) = 2\left(\frac{mc^2}{2} = \frac{I\,\omega^2}{2}\right) = m\,c^2 = I\,\omega^2\right\} =$

$2\left\{E_{Lr} = \frac{1}{2}m\,c^2 = PV = \frac{F_{Lr}}{4\pi\,r^2}\frac{4\pi\,r^3}{3} = \frac{1}{3}r.F_{Lr}\right\} = 2\left\{E_{Rr} = \frac{1}{2}I\,\omega^2 = \frac{1}{2}(mr^2)\left(\frac{c^2}{r^2}\right) = \frac{1}{2}m\,c^2 = \right.$

$\left.\frac{1}{2}r \times \left(\frac{mc^2}{r}\right) = \frac{1}{2}r \times F_{Rr} = \frac{1}{2}T = 2E_P\right\}$; E_P: *Electrical self potential energy*

All elementary particles are formed by collapsing some ramions, distributing their energy onto other ramions and forming a black hole in size of 1 ramion as local (relative) value that can be considered as compressed mass to simplify some calculations but really its nothing: A hole in space without matter, energy, time and space. Ramions have no space to carry extra energy because they are on maximum pressure and c (light speed) so they expand space (and in consequence they expand Time to keep speed and energy unchanged) in a manner that forces and torques are balanced. It means reducing space pressure relatively that generates **gravity and strong nuclear force**. Matter-Energy transformations called **Ramionic reaction** can be calculated and predicted by ramionics preciously. In ramionics black holes are simple but huge neutrino, they distributed their energy into the space to supply needed mass of their starts.

Electrical charges exactly present torque and rotation $2K_rQ_r^2$=T. the black hole is covered by 12 ramion in same size named as wings. Each ramion carries a charge equal to 1/12 of an electron, and opposite ramion along an axis must have equal charge for torque equilibrium, the six ramion couple (±e/6) can only sustain total charge states of 0, ±1/2 e, ±2/3 e, ±e. electrical field is distributed by indentation of ramions and generate **electromagnetics and weak nuclear force**.

Ramions generate, contains, transport, define, formulate, and Explain any fundamental thing in physics: space, time, compatible Relativity + Gravity + quantum, matter, antimatter and their asymmetry, Time dilation, gravity and dark gravity (so called dark matter) , space energy (so called dark energy) causing space expansion, all elementary forces: gravity (+strong nuclear force), electromagnetic (+weak nuclear force), elementary particles structure geometry, physics constants like fine structure constant or elementary particles mass or electrical charges, black hole, worm hole, entanglement, … **with no** space-time curvature, no singularity, no quantum

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field, no quantum loop, no mass generator or force or energy carrier particle like bosons, no chromodynamics, no string, no extra dimension, no parallel world.

Starting point:

(2) $\alpha = \frac{K\, e^2}{\hbar\, c}$ =alpha: fine structure constant

Measured values:

(3) $\frac{1}{\alpha} = 137.035999046(\pm 27)$ Cz recoil (Berkeley 2018)

(4) $\frac{1}{\alpha} = 137.035999206(\pm 11)$ Rb recoil (LKB,Paris 2020)

(5) $\frac{1}{\alpha} = 137.035999177(\pm 21)$ CODATA (2022)

;Committee on Data for Science and Technology

Ramionics calculates alpha using universe geometry simply:

(6) $\frac{1}{\alpha} = \pi\, \gamma^2 2^6 \left(1 - \frac{1}{12\left(0.5 + RoundUp\left(\frac{4}{10}\, 12\, \pi^2\, 2^6\right)\right)}\right)$

(7) $\gamma = \sqrt[3]{\frac{10}{24\, \varphi}} = 0.8255785095$;Radial freedom from FCC geometry

(8) $\frac{1}{\alpha} = 137.039765071 12\left(1 - \frac{1}{36390}\right)$ =137.03599920783

Above value is accurate value for alpha!

Sensitivity checking:

$\frac{1}{\alpha} = 137.03599910434$; Using 36389

$\frac{1}{\alpha} = 137.03599931132$; Using 36391

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3.Geometry of the FCC (Face-Centered Cubic) lattice

General Data in crystallography:

Any ramion is tangent to 12 neighbors, generating maximum volume occupancy.

number of ramions in layer n as follows:

(9) $\boxed{L(n) = 10n^2 + 2}$;L(1)=12; L(2)=42; **but L(0)=1** means center.

the cumulative number up to layer n (including it) is:

(10) $\boldsymbol{T(n)} = (1\ for\ centre) + \sum_{k=1}^{n}(10k^2 + 2) = \boxed{\boldsymbol{T(n)} = 1 + \frac{10n^3+15n^2+11n}{3}}$

(11) $\varphi = \frac{\pi}{3\sqrt{2}} = 0.74048048969$ φ: Volumetric Occupancy

Special parameters introduced by ramionics: γ: Radial Freedom and β:Area occupancy

(12) $\varphi\ \frac{4\pi}{3}R^3 = T(n)\ \frac{4\pi}{3}\ r^3\ ; R = \gamma \times (n \times 2r)$ γ: Radial Freedom

(13) $\rightarrow \gamma = \sqrt[3]{\frac{10}{24\ \varphi}} = \sqrt[3]{\frac{10\sqrt{2}}{8\pi}} = 0.8255785095$

(14) $(10n^2 + 2)\pi r^2 = \beta\ 4\ \pi\ R^2 = \beta\ (4\pi)\ (\varphi'\ n\ 2\ R)^2$

(15) $\rightarrow \beta = \frac{10}{16\varphi'^2} = \frac{10}{16\ (\frac{10\sqrt{2}}{8\pi})^{\frac{2}{3}}} = 0.91698716849$ β:Area occupancy

φ ,γ , β represent the FCC geometric structure of universe and hidden ratios behind the fine-structure constant.

(16) $\beta = \frac{10}{8(\ 2\ \gamma^2)}$; $\varphi = \frac{10}{8(\ 3\ \gamma^3)}$

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4.Ramions count in any baryon, Ramionic reactions

(17) $n_g = [K_C]\,12 \times (0.5 + \text{RoundUp}\,(W_g));\ W_g = \frac{4}{10}12\pi^2 64^{\text{g}}$

ng: number of ramions in any baryon of generation g

n1: number of ramions in any B1. B1 means baryons of generation one: electrons, up, and down quarks;

K_C: 1 *or* 5 ; $n1 = 36390$ *or* 181950 ; K_C: *K constant of count*

64^{g} : baryon generation factor

B1 is made by collapsing $[K_C] \times 36390$ Ramions and its equivalent energy is equal to this count of ramions energy.

W represents the Wing: Any of 12 ramions that cover the hole of particle

(18) $n_g = [K_C]\,12 \times (\frac{W_g}{K_W})$; $K_W = \frac{W_g}{0.5+\text{RoundUp}\,(W_g)}$

$W_0 = 47.374$; $n0 = [K_C]\,12 \times 48.5 = [K_C]\,582$; $K_W = \frac{47.374\ldots}{48.5} = 0.97678559021$

$W_1 = 3031.94$; $n1 = [K_C]\,12 \times 3032.5 = [K_C]\,\mathbf{36390}$; $K_W = \frac{3031.94247\ldots}{3032.5} = 0.99981614906$

K_W *and* K_Q are dependent to g but independent of packet scenario.

(19) $\frac{3\varphi}{\gamma^3}12^2 = \frac{4\pi^2}{10}\,12^2 = \frac{4}{10}(12\pi)^2$: FCC Golden Number for maximum balance on volume /surface, Energy /Torque

3 possible **packet scenarios** for ramionic reaction when transforming energy to baryon:

$[K_C]$: 5 $[K_p]$: 1

In collapsing layers 1 to 119 **one packets** (of 31 B1) is formed and then transformed to **one** packets (of 7 protons+1 neutrons +7 electrons) until layer 479.

$[K_C]$: 1 $[K_p]$: 5 *or* 6

In collapsing layers 1 to 119 **five packets** (of 31 B1) is formed and then transformed to $[\boldsymbol{K_p}]$ packets (of 7 protons+1 neutrons +7 electrons) until layer 479.

$[K_p] = 6$ means an extra packet is produced after layer 119.

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Strong layers against collapsing must have maximum similarity to ideal sphere so they have most similarity to layer 1 (with 12 ramions) and layer infinity which have $10n^2+2$ ramions (approximately 10 multiplier number), So they are 12×10 = 120 multipliers.

Super strong layers: $120, 480, \dots, 4^k 120, \dots$

In Super strong layers we larger layers are stronger.

Strong layers: other 120 multipliers and 120 factors

1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 40, 60, 240, 360, 600, …

In this group 30=120/4 (means baryon generation 0) and 60 (multiplier of 10 and 12) are stronger than the others, layers 2,4,6 a little weaker than the others.

Relative Weak layers (geometrical mean of strong or super strong layers):

7, 9, 11, 13, 17, 22, 27, 35, 49, 85, 170, 294, …

Layers $4^k 120$ are needed to keep maximum similarity in quantum level between radius, surface and volume ratios, this means generation factor of 64^g

If layers 480 collapses then collapsing is continued until layer 16*120 to produce baryons of generation 2 so baryons in any generation have factor of $4^{3g} = 64^g$

In Ramionic reactions **most similar, great particles** are produced as main products, it usually means prime number.

Baryon balancing till layer 119:

$$\mathbf{(20)}\begin{cases} T(119) = 5688439 = 5\{31 * (36390 + 309) + 18\} + 4 \\ T(119) = 5688439 = 31(181950 + 1545) + 94 \end{cases}$$

Neutrino balancing:

$1545 = 5N4;\ N7 = 1415;\ N4 = 309;\ N3 = 147;\ N2 = 55;\ N1 = 13;\ N0 = 1\ ;$

Any packet (31 B1) can be transformed to (15 U +9 D +7 e) after electrical charging then transform to (7 protons +7 electrons +1 neutron) after getting extra energy of collapsing layers 120 to 479.

31,15,7 in this packaging are $2^n - 1$ and 9 is $2^n + 1$ means neutron to proton ratio of 7

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Strong layers can stop (or at least reduce ramionic reactions speed to create an opportunity for particles to settle charges and merging together). So we expect number of baryons at layer 119 to be **prime number** 31 but Maybe electrical charging or process speed let factor 5 to be attend in the final number of ramion 5*31.

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5.Ramion energy E_r

Collapsing is interuupted at layer 119 becouse 120 is super strong:

(21) $(T(479) - 31 \times 1545)E_r = K_P(1\ E_N + 7\ E_{Pr} + 7\ E_e)$

$E_N = 939.56542052$ MeV

$E_{Pr} = 938.27208816$ MeV

$E_e = 0.51099895000$ MeV

$T(479) = 367489759$

(22) $E_r = K_P \frac{7511.04703029\ MeV}{367489759 \quad \times 1545}$

$E_r = [K_E]\ 102.2072845555\ eV = [K_E]\ 1.6375412314 \times 10^{-17}$J

Ignoring rotational (magnetic energy) of electrons (and up and down quarks around themselves in comparing to proton and neutron rotational energy with grater radius

And Ignoring some little neutrino absorbed or emitted:

K_E	Scenario 1 $K_E = 1$ *means*: $K_p = 5;\ K_c = 1$	Scenario 2 $K_E = \frac{1}{5}$ *means*: $K_p = 1;\ K_c = 5$	Scenario 3 $K_E = \frac{6}{5}$ *means*: $K_p = 6;\ K_c = 1$
$n=N_{b1}$	36390	181950	36390
E_r	$102.2072845555\ eV$	$20.4414569111\ eV$	$122.6487414666\ eV$
$E_{b1} = N_{b1}E_r$	3.719323084975 MeV	3.719323084975 MeV	4.463187701970 MeV
$E_{Pe} = E_{B1} - E_e$	3.20832413498 MeV	Same as K_E=1	3.95218875197 MeV
$E_D = E_{B1} - \frac{E_{Pe}}{9}$	3.36284262553 MeV	Same as K_E=1	4.02405561842 MeV
$E_U = E_{B1} - \frac{4E_{Pe}}{9}$	2.29340124721MeV	Same as K_E=1	2.70665936776 MeV

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(23) $\frac{E_P\ of\ Packet}{E_{Pe}} = (15 \times \frac{4}{9}) + (9 \times \frac{1}{9}) + (7 \times 1) = 14\frac{6}{9}$

Scenario 1 seems to be actual because we see 36384 in K_Q and G formulas.

Scenario 2 is possible because it means 31 baryons at layer 119 (and 31 is a prime number) and Scenarios 1 and 3 correspond t0 5*31 particles (that is not a prime number) **but** may be collapsing layer 120 leaves no opportunity to 5 baryon merging

Scenario 3 is possible because it results in more similar values to gluon modelling results $E_D = 4.8\ MeV$, $E_U = 2.3\ MeV$ but ramionics calculations are based on universe particles to have higher accuracy without any modeling base particle like gluon.

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6.Desired scaling units (r, c, E_r for meter, second, Joule) and planck constant

(24) c = 2.99792458×10⁸ m/s ; Light Speed: exactly fixed as a base

(25) $E_r = [K_E]\ 102.2072845555\ eV = [K_E]\ 1.6375412314 \times 10^{-17}\text{J}$

E_r Calibrated to defined energy and equivalent mass of a

{7 Protons+1 Neutrons+7 Electrons} Packet.

(26) $E = \hbar\omega = I\omega^2$; planck constant definition

→for neutrino N1: $R = \sqrt{5}r; I = \frac{2}{3}mR^2 \rightarrow \hbar_{N1} = K_h\hbar_r\ ; K_h = \frac{10}{3}$

Layer 1 of FCC reachs to max surface occupancy and derivative of volume at $\sqrt{5}r$.

(27) $\hbar_p = (K_h\hbar_r)(n_p)^3$; ħ in ramion's volume increases for any particle.

Radius of particle hole is 1 ramion relatively (locally) but seems larger than 1 ramions of far steady state space from that point of view.

$\hbar_{B1} = (K_h\hbar_r)(n_{B1})^3$; usual ħ

(28) $h = 6.62607015 \times 10^{-34}\ \text{J}\cdot\text{s}$; exactly fixed as a base

$\hbar = \frac{h}{2\pi} = 1.05457182 \times 10^{-34}\ \text{J}\cdot\text{s}$

(29) → $\hbar_r = [K_E{}^{-3}]6.56524970784 \times 10^{-49}\ \text{J}\cdot\text{s}$;Ramion's ħ

(30) $\boxed{E_r r = (\hbar_r\omega)r = \hbar_r(\omega r) = \hbar_r c}$

(31) ; $r = [K_E{}^{-4}]1.2019314748 \times 10^{-23}m$;Ramion's Radius

So planck constant can be calculated by r, c, E_r:

(32) $\hbar_r = \frac{E_r r}{c};\ \hbar_p = (K_h\hbar_r)(n_{B1})^3; K_h = \frac{10}{3}$.

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7.Fine-Structure Constant

(33) $R^2 \mathrm{F} = \mathrm{k}\, \mathrm{e}^2 = \alpha\, \hbar\, \mathrm{c}$; definition

Electrical Charge is equivalent to Torque and rotational Energy so similar electrical charges repel each other so collecting them on any surface needs energy (Like any capacitor) that can be calculated by two simple integrals (**Electromagnetic self energy**)

(34) $E_r = 2\, E_{Rr} = 4\, E_P = T$ =Torque

(35) $E_{\Delta Q} = \int_{\infty}^{r} -F\, dra = \int_{\infty}^{r} \frac{-\, K_r\, Q\, \Delta Q}{R^2} dR = \frac{K_r\, Q\, \Delta Q}{r}$ minus sign: save Energy

(36) $E_P = \int_0^{q_r} \frac{K_r\, Q\, dQ}{r} = \frac{K_r\, {q_r}^2}{2r}$ for any sphere or semi sphere with q_r charge

for particles consisted of n Ramion:

(37) $E_P = \sum_{t=2}^{n} (t-1)\ \frac{\mathrm{K}\,(Q/n)^2}{2\, R_Q}$ R_Q: $radius\ for\ charges\ surface$

(38) $E_p = \frac{K}{2\, R_Q} \left(\frac{Q}{n}\right)^2 \frac{n\,(n-1)}{n^2} = \frac{\mathrm{K}\, Q^2}{2\, R_q}\left(1 - \frac{1}{n}\right)$

(39) $K_Q = \left(1 - \frac{1}{n}\right)$; **Quantum Factor**

(40) $K_Q = \left(1 - \frac{1}{36390}\right) = 0.99997251992$; B1's Quantum Factor

The coefficient Quantum Factor refines formulas needed to compensate error of continues calculation on really discrete parameters. Here it converts Q^2 (considered as continues parameter) to Q^2 as a discrete charge produced by ramions.

$K_Q\ and\ K_W$ are dependent to g but independent of packet scenario

So ramionics can calculate $\mathrm{K_r}$ *and* $\mathrm{K_r e^2}$ by only r, c, $\mathrm{E_r}$:

(41) $\frac{1}{\alpha} = 2^6\, \pi\, \gamma^2 \left(1 - \frac{1}{\frac{12}{2} + 12\, RoundUp\left(12\, \pi^2\, 2^6 \times \frac{4}{10}\right)}\right)$

(42) $\mathrm{k}\, \mathrm{e}^2 = \alpha\, \hbar\, \mathrm{c} \rightarrow \mathrm{K} = K_r n^2\, \frac{K_h \beta^{\frac{\pi}{2}}}{K_W K_Q}$; $\mathrm{K_r e^2} = \frac{144}{2}\, \mathrm{E_r}\, r$

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8. Calculating G and other physic constant in Ramionics

Calculating G (for baryon B1)

(43) $hE_r = \int_0^r G_r\, m\, dm \frac{1}{R}\ ;\ m = \left(\frac{4}{3}\right)\pi R^3\rho;\ dm = 4\,\pi R^2\rho\, dR$

$\rightarrow G_r = \frac{5\, r\, c^4}{3\, E_r} = 9.88141241595 \times 10^{27}\ m^3kg^{-1}s^{-2}$; Gravitational Self Energy

(44) $G = G_r \frac{n^8}{48} = \frac{\hbar\, c^5}{96\, n^9\ E_{B1}^2} = \frac{\hbar\, c^5}{96\, n^{11}\ E_r^2}$; Ignoring K_w and K_Q ;

The exclusive way to Refine geometrical formula for G is increasing n from 36390 to 36400 it is the best sign for single baryon rotational (magnetic) energy equal to 10 ramion energy

(45) $G = \frac{\hbar\, c^5}{96\, n^{11}\ E_r^2} = 6.6743462768\ \times 10^{27}\ m^3kg^{-1}s^{-2}$

(46) $experimental\ value: 6.67430 \pm 15 means\ 6.67415\ to\ 6.67445$

So ramionics can calculate G and Dark gravity and all cosmological parameters by only r, c, E_r:

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